Drying of capillary porous media: an overview of some modelling issues

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In spite of many studies spanning over several decades, the drying of porous media is still an active research area. This even holds for presumably “simple” situations, such as the quasi-isothermal drying of a capillary porous medium (a packing of not too small glass beads, i.e. greater than about 1µm in diameter, is an archetypical example of such a medium). The physics of drying for such media can be discussed in relation with the modelling of the drying process in such media. In this context, it is common to distinguish the discrete approach [1] and the continuum approach [2]. The former is based on a representation of the pore space as a network of interconnected pores and relies in part on percolation theory [3] whereas the latter is based on the traditional concept of representative elementary volume. Some modelling issues for both approaches will be discussed and a route for formally connecting the two approaches will be outlined [4].

References

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